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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/540,128	03/31/2000	Robbin Hughes	990253	3976

23696 7590 07/11/2006

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EXAMINER	
TRAN, KHANH C	

ART UNIT	PAPER NUMBER
2611	

DATE MAILED: 07/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/540,128	HUGHES ET AL.	
	Examiner	Art Unit	
	Khanh Tran	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 April 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2-7,9-13,18 and 20-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *2-7,9-13,18 and 20-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *05/21/2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. The Amendment filed on 04/28/2006 has been entered. Claims 2-7, 9-13, 18 and 20-25 are pending in this Office action.

Response to Arguments

2. Applicant's arguments filed on 04/28/2006 have been fully considered but they are not persuasive.

Claim Objections

3. Claim 2 is objected to because of the following informalities:

Regarding claim 2, in line 2, "the number" should be changed to -- a number --.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 3-4, 18 are rejected under 35 U.S.C. 102(e) as being anticipated by Watanabe U.S. Patent 6,044,104 (previously cited).

Regarding claim 4, Watanabe invention is directed to cell search methods and mobile station apparatuses used for cellular systems.

In column 2 lines 1-15, Watanabe discusses that in a cellular system using the CDMA system, all base station apparatuses transmit a pilot channel which is spread with the same long code, while a mobile station apparatus carries out correlative detection of all phases of the spreading code of the pilot channel received.

In column 3 line 39 through column 4 line 62, Watanabe discloses in figure 1 a mobile station apparatus including a search section, which comprises N search correlators 3, a control section 7, and a search control section 8.

The search control section 8 divides a search window into a number of search widths corresponding to the number of search correlators 3, and makes each of correlators 3 carry out correlative detection about these divided search widths simultaneously in a short integrating time. Since the outputs of these correlators 3 use a short integrating time to shorten a search time, they do not suppress interference or noise sufficiently nor achieve the accuracy to carry out cell judgment. In light of the foregoing disclosure, the search as discussed above

is equivalent to a coarse search as claimed, using coarse search parameters including dividing the search window into a number of search widths and using short integration time.

Watanabe further teaches that the search control section 8 selects multiple phases in high-low-order of the detected correlation values, makes each correlator carry out correlative detection for these selected phases in an integrating time longer than the first integration time. In light of the foregoing, results from the first search are applied to a second search, which corresponds to the claimed using the results of the coarse search parameters for use in a second search. The second search corresponds to the claimed fine search.

Regarding claim 3, as recited in claim 4, a short integrating time is used for a coarse search, and an integrating time long enough is used to obtain the accuracy to carry out cell judgment on the specified phases; see column 4 lines 15-35.

Regarding claim 18, claim 18 is rejected on the same ground as for claim 4 because of similar scope.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe U.S. Patent 6,044,104 (previously cited) in view of Murai et al. U.S. 6,154,487 (previously cited).

Regarding claim 2, Watanabe does not teach the claimed limitation "a number of non-coherent passes is reduced in comparison with the fine search".

In US Patent '487', in column 6, lines 40-60, Murai et al. discusses that in order to shorten the acquisition time, by setting the number of integrations for averaging and using a plurality threshold levels, primary evaluation may be accomplished based on a short integration time and a low threshold level, and a secondary evaluation may be executed based on longer integration time in a case where there is a high possibility that the reception timing matches. One of ordinary skill in the art would have recognized that primary evaluation corresponds to the claimed coarse search, a secondary evaluation corresponds to the claimed fine search, and the number of integrations set for averaging corresponds to the claimed plurality of predetermined integration intervals.

In column 6, lines 25-45, Murai et al. further discusses that generally, in order to reduce effect of noise, the correlative powers obtained at the same timings are, in many cases, and the average correlation power is used to determine the completion of synchronization. In figure 21, an averaging unit (non-coherent accumulator) 46 integrates correlation power for a predetermined

number of times (e.g. number of non-coherent passes) so as to average the power, and thereby reduce the effect of noise.

Watanabe and Murai et al. teachings are in the same field of endeavors. Furthermore, Watanabe search control section 8 rearranges the correlative values in the order of electrical power and select multiple phases starting with the one with the maximum power in the second search. Because Watanabe teaches applying a short integrating time to shorten a search time, they do not suppress interference or noise sufficiently, therefore, one of ordinary skill in the art at the time of the invention would have been motivated to modify Watanabe teachings to implement an averaging unit (Non-Coherent Accumulator) 46 to average correlation power, which is obtained at every symbol interval for a predetermined number of times as discussed in Murai et al. invention. Motivation is the average correlation powers obtained at the same timings are used for reducing the effect of noise as discussed in Murai et al. invention. Furthermore, since Watanabe teachings do not need to achieve the accuracy to carry out cell judgment in the first search, one of ordinary skill in the art at the time the invention was made would have recognized that the number of non-coherent passes is reduced in comparison with the fine search.

6. Claims 5-7, 9-15 and 19-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watanabe U.S. Patent 6,044,104 (previously cited) and Murai et al.

U.S. Patent 6,154,487 (previously cited) as applied to claim 4 above, and further in view of Byun U.S. Patent 6,445,728 B1 (previously cited).

Regarding claim 5, claim 5 is rejected on the same ground as for claim 4 because of similar scope. Referring to figure 1 in Watanabe invention, the 1st to Nth search correlators 3 constitute the claimed search engine, wherein the 1st to Nth search correlators 3 are configured to receive search parameters, to conduct search signals within divided windows, and to output the correlative values. The search control section 8 constitutes the claimed controller, wherein the search control section 8 is configured to pass search parameters to the 1st to Nth search correlators 3. The claimed set of the coarse search parameters as set forth in the claim is already addressed in claim 1.

Watanabe does not expressly disclose a memory as set forth in the application claim.

The mobile station employing a memory as set forth in the claim is cited in another US patent '728'. Byun discloses a method of establishing search window size for a mobile station in a cellular system, the method including performing a coarse search by finding a correlation energy value at each searcher position within a predetermined first search window, and estimating the size of a second search window to be applied to the mobile station based on said search result. In figure 2, the mobile station includes a memory 190 for receiving and storing the search results. The search results are passed to control logic 146, corresponding to the controller, through a CPU. The mobile station as taught by Byun has

similar structures as the mobile station apparatus taught by Watanabe. As well known in the art of wireless communications, memory is implemented for storing and retrieving data in any mobile station apparatus, therefore, it would have been obvious for one of ordinary skill in the art that the mobile station apparatus taught by Watanabe could be modified to include a memory as disclosed in Byun invention.

The search parameters as set forth in the application claim are discussed in claim 1. Therefore, the rejection argument of claim 1 applies here.

Regarding claim 6, Watanabe does not teach the claimed limitation "wherein the set of coarse search parameters comprises a number of non-coherent passes selected from a range of non-coherent passes" as set forth in the application claim.

In column 6, lines 25-45, Murai et al. further discusses that generally, in order to reduce effect of noise, the correlative powers obtained at the same timings are, in many cases, and the average correlation power is used to determine the completion of synchronization. In figure 21, an averaging unit (non-coherent accumulator) 46 integrates correlation power for a predetermined number of times (e.g. number of non-coherent passes) so as to average the power, and thereby reduce the effect of noise. Because Watanabe teaches applying a short integrating time to shorten a search time, they do not suppress interference or noise sufficiently, therefore, one of ordinary skill in the art at the

time of the invention would have been motivated to modify Watanabe teachings to implement an averaging unit (Non-Coherent Accumulator) 46 to integrate correlation power for a predetermined number of times from a range of non-coherent passes. Motivation is the average correlation powers obtained at the same timings are used for reducing the effect of noise as discussed in Murai et al. invention. Furthermore, since Watanabe teachings do not need to achieve the accuracy to carry out cell judgment in the first search, one of ordinary skill in the art at the time the invention was made would have recognized that the number of non-coherent passes is reduced in comparison with the fine search.

Regarding claim 7, Watanabe does not expressly teach the claimed features "wherein the set of coarse search parameters comprises an integration interval selected from a plurality of predetermined intervals".

In US Patent '487', column 6, lines 40-60, Murai et al. discusses that in order to shorten the acquisition time, by setting the number of integrations for averaging and using a plurality threshold levels, primary evaluation may be accomplished based on a short integration time and a low threshold level, and a secondary evaluation may be executed based on longer integration time in a case where there is a high possibility that the reception timing matches. One of ordinary skill in the art would have recognized that primary evaluation corresponds to the claimed coarse search, a secondary evaluation corresponds to the claimed fine search, and the number of integrations set for averaging

corresponds to the claimed plurality of predetermined integration intervals. Watanabe and Murai et al. teachings are in the same field of endeavors. Because Watanabe teaches using a short integration time to shorten a search time, it would have been obvious for one of ordinary skill in the art at the time of the invention that Watanabe cell search method can be modified to select the first integrating time from a number of integrations set for averaging as taught in Murai et al. invention. As recited in claim 3, a short integrating time is used for a coarse search, and an integrating time long enough is used to obtain the accuracy to carry out cell judgment on the specified phases; see column 4 lines 15-35.

Regarding claim 11, claim 11 is rejected on the same ground as for claim 5 in view of claims 6-7 because of similar scope.

Regarding claim 9, claim 9 is rejected on the same ground as for claim 2 because of similar scope.

Regarding claim 10, claim 10 is rejected on the same ground as for claim 3 because of similar scope.

Regarding claim 12, Watanabe does not explicitly teach the step of storing all measured signal levels identified during the coarse search as set forth in the application claim.

However, in column 4 lines 15-45, because Watanabe teaches the search control section 8 rearranges correlative in the order of electrical power after obtaining the correlative values within the entire search window, one of ordinary skill in the would have recognized that the search control section 8 stores all the electrical power measured in the entire search window.

Regarding claim 13, claim 13 is rejected on the same ground as for claim 11 because of similar scope.

Regarding claim 14, claim 14 is rejected on the same ground as for claim 1 because of similar scope. However, Murai et al. does not teach any specificity on the ranges of noncoherent passes and integration interval. Nevertheless, because Watanabe teaches that the outputs of correlators 3 as shown in figure 2 use a short integrating time to shorten a search time, it would have been obvious for one of ordinary skill in the art at the time of the invention that the claimed ranges of non-coherent passes and integration interval are within Murai et al. disclosure. Motivation is the claimed ranges are short enough (e.g. one coherent pass, 0.06 msec integration time) for shortening the search time.

Regarding claim 15, claim 15 is rejected on the same ground as for claim 1 because of similar scope.

Regarding claim 19, claim 19 is rejected on the same ground as for claim 14 because of similar scope. Furthermore, Watanabe does not disclose dividing the search window into un-equal segments as claimed in the pending patent application. However, it would have been obvious for one of ordinary skill in the art that Watanabe teachings can be modified to divide the search window into unequal widths. Motivation is to have flexible search width as appreciated by one of ordinary skill in the art.

Regarding claim 20, as recited in claim 4, In column 2 lines 1-15, Watanabe discusses that in a cellular system using the CDMA system, all base station apparatuses transmit a pilot channel which is spread with the same long code, while a mobile station apparatus carries out correlative detection of all phases of the spreading code of the pilot channel received.

In column 3 line 39 through column 4 line 62, Watanabe discloses in figure 1 a mobile station apparatus including a search section, which comprises N search correlators 3, a control section 7, and a search control section 8.

The search control section 8 divides a search window into a number of search widths corresponding to the number of search correlators 3, and makes each of correlators 3 carry out correlative detection about these divided search

widths simultaneously in a short integrating time. Furthermore, figure 2 of Watanabe invention shows the search widths are equal.

Regarding claim 21, Watanabe does not explicitly disclose dividing the search window into N equal or unequal segments as claimed in the pending patent application. However, because the pending application does not express the benefit of dividing the entire PN space into unequal segments, one of ordinary skill in the art at the time the invention was made would have recognized that dividing the search window into unequal widths is a matter of design choice.

Regarding claim 22, Watanabe does not explicitly teach the portions of the PN space are peaks exceeding a predetermined signal strength as set forth in the application claim.

However, in column 4 lines 40-50, Watanabe further teach dividing the search window into portions, assigning them to multiple correlators, obtaining correlative values for all phases within the search window, and judging the maximum value allowing a high-speed cell search. Because the act of judging the maximum value would be equivalent to finding peaks exceeding a predetermined threshold, one of ordinary skill in the art would have recognized that the portions containing maximum values would correspond to the claimed portions of PN space for peaks exceeding a predetermined signal strength.

Regarding claim 23, in column 4 lines 30-45, Watanabe teaches that control section 8 further rearranges the correlative values obtained in the order of electrical power and selects correlative values by the number of demodulable phases from the top and combines these selected correlative values to obtain the strength of the pilot channel of this base station apparatus. In view of the foregoing, the correlative values, starting with the one with maximum power, by the number of demodulable phases from the top correspond to the claimed predetermined number of strongest peaks.

Regarding claim 24, as recited in claim 23, control section 8 further rearranges the correlative values obtained in the order of electrical power and selects correlative values by the number of demodulable phases from the top and combines these selected correlative values to obtain the strength of the pilot channel of this base station apparatus.

Regarding claim 25, Watanabe does not teach the portions of PN space are identified by a preferred base station as claimed in the application claim.

Watanabe discusses in a prior art, the base station apparatus notifies a mobile station of the range of the phase presence estimated from the long code phase information used by base station apparatuses. Because notification a mobile station of the range of the phase presence estimated from the long code phase information used by base station apparatuses would further allow more

high speed search, one of ordinary skill in the art would have been motivated to implement the teachings as discussed in prior art.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khanh Tran whose telephone number is 571-272-3007. The examiner can normally be reached on Monday - Friday from 08:00 AM - 05:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on 571-272-2988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

KCT

Khanh Cong Tran 06/29/2006

Primary Examiner KHANH TRAN